AUTOMATIC NUMBER IDENTIFICATION OUTPULSER CIRCUIT

OPERATION TESTS

NO. 1 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes a method of testing outpulser circuit SD-95811-01 using outpulser-identifier test circuit SD-95815-01 in No. 1 crossbar offices arranged for ANI.

1.02 This section is reissued to change tests to include outpulser circuits when arranged for PBX automatic identified outward dialing (AIOD) and to add Test K to incorporate short and long loop-around AIOD tests and a test of the translator functions.

1.03 The tests covered are:

A. Regular Call: This test checks the ability of the outpulser circuit to record information from an ANI trunk, to record and check calling line directory number or AIOD PBX trunk number information, and to outpulse the directory or PBX station number.

B. Abandoned Call: This test checks the ability of the outpulser to recognize that the call has been abandoned by the calling customer.

C. Work Timer: This test checks the ability of the outpulser work timer to function. This test also checks that the work timer recycles properly during the progress of the call.

D. Timer Two — Continuity Check Failure: This test checks the ability of the outpulser party test, abandoned call, and AIOD timer to provide a timed interval required on party test, abandoned call, and AIOD operation. This test also checks the ability of the outpulser to recognize a continuity failure between the outpulser and the trunk.

E. Outpulser Second Trial: This test checks the ability of the outpulser to make a second trial if the identification fails on a first trial.

F. Trunk Lockup: This test checks the ability of the outpulser to recognize a trunk lockup condition. This test also checks that the outpulser can lock up an ANI trunk for trouble tracing.

G. All Identifiers Busy: This test checks the ability of the outpulser to recognize an all-identifiers-busy condition. This test also checks that an operator identification signal is sent when an all-identifiers-busy condition is recognized.

H. Office Code Translation: This test checks the ability of the outpulser to translate a one-digit office indication into a physical or theoretical 3-digit office code.

I. Digit Overregistration: This test checks the ability of the outpulser to recognize an overregistration in the digit register relays. This test also checks that the outpulser causes a trouble ticket to be printed and, after failure on second identification trial, outpulses an operator identification signal.

J. Identifier Preference: This test checks the ability of the outpulser to alternate identifier preference between identifiers 0 and 1 on successive operations of the outpulser circuit.

K. Short and Long Loop-Around and Translator Test — When PBX Groups are Arranged for AIOD Class of Service: This test checks that the AIOD office code and PBX trunk number will cause an AIOD translator to respond to the outpulser with the PBX office index and PBX station number.

1.04 The office records must be consulted to obtain office number and office code information for the office code translation test. Where an office unit contains both physical and theoretical office codes, thousands group information must also be obtained. Where both physical and theoreti-

cal office codes are associated with the same thousands group, hundreds group information must also be obtained. Cross-connections in the outpulser determine which thousand and hundred digits are assigned to the physical and theoretical portions of the office.

1.05 The digits which are selected by the operation of an individual key for each digit are registered on the digit lamps on a two-out-of-five basis. Where a test verification requires a comparison of the digit keys operated with the digit lamps lighted, a translation of the lamps must be made.

1.06 For lines in a PBX group not arranged for AIOD service, the directory number identified and displayed is the PBX group billing number.

1.07 For lines in a PBX group arranged for AIOD service, the number displayed and identified in both the short and long loop-around test is the PBX station number.

1.08 The directory number consists of an office, thousand, hundred, ten, and unit digit. The office digit is the arbitrary digit used to represent a 3-digit office code. Cross-connections in the outpulser determine which digits are assigned to each central office.

1.09 The PBX trunk number consists of the AIOD office code number and an arbitrary 4-digit number.

1.10 In the short loop-around test, the PBX station number consists of the PBX office index number and the same 4-digit number as the PBX trunk number.

1.11 In the long loop-around test, the PBX station number consists of the PBX office index number and a 4-digit number which has been programmed into the station identified store (SIS) for long loop-around test calls.

1.12 The AIOD office code number is determined by the OFF- key associated with AIOD PBX's.

1.13 The PBX office index number is determined by the UNO- or POF key selected.

1.14 During all tests the test call (TC) register will score. The reporting of this operation should be in accordance with local instructions.

1.15 *Lettered Steps:* A letter a, b, c, etc, added to a step number in Part 3 or 4 of this section, indicates an action which may or may not be required depending on local conditions. The condition under which a lettered step or a series of steps should be made is given in the ACTION column, and all steps governed by the same condition are designated by the same letter within a test. Where a condition does not apply, all steps designated by that letter should be omitted.

2. APPARATUS

2.01 The apparatus required for each test is shown in Table A. The details of each item are covered in the paragraph indicated by the number in parentheses.

2.02 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord).

TABLE A

APPARATUS	TESTS										
	A	B	C	D	E	F	G	H	I	J	K
Outpulser-Identifier Test Circuit SD-95815-01	1	1	1	1	1	1	1	1	1	1	1
Miscellaneous Circuit, Trouble Ticketer Frame SD-95823-01	–	–	1	1	1	1	1	–	1	–	–
Trouble Ticketer Circuit SD-95816-01	–	–	1	1	1	–	–	–	1	–	–
329A (Make-Busy) Plug	–	–	–	–	√	–	√	–	√	–	–
KS-6278 Connecting Clip	–	–	–	–	–	–	1	–	–	–	–
639A Tool	–	–	–	–	–	–	1	–	–	–	–
651D Tool	–	–	–	–	–	–	1	–	–	–	–
Cord (2.02)	–	–	–	–	–	–	1	–	–	–	–
√ As required.											

3. PREPARATION

| STEP | ACTION | VERIFICATION |

All Tests

1   At outpulser-identifier trunk test (OITT) frame —
Restore all keys.

2   Operate OIT key to prepare test circuit for outpulser-identifier test.

3   Operate OP- key to select outpulser to be tested.

4a   If more than one outpulser group is associated with OITT —
Operate IG- key to select proper identifier group.

5b   If a particular identifier is to be used —
Operate corresponding ID- key.

6c   If tip party is to be simulated —
Operate TP key.

4. METHOD

| STEP | ACTION | VERIFICATION |

A. Regular Call

7   Operate OFF-, THO-, HO-, TO-, UO- keys in accordance with Test 1 in Table B.

TABLE B

TEST	KEYS				
	OFF-	THO-	HO-	TO-	UO-
1	0	1	1	1	1
2	1*	6	6	6	6
3	2*	7	7	7	7
4	3**	0	0	0	0
5	4**	3	3	3	3
6	5**	4	4	4	4
7	6**	2	2	2	2

*If office is not provided in identifier group, operate OFF0 key.

**If office is not provided in identifier group, proceed to next step.

Note: If office 6 is provided, it is always associated with a PBX arranged for AIOD service.

STEP	ACTION	VERIFICATION
8	Operate ST key.	At OITT — OB, RL, I4, I7, ST7, ST10, PK, IK, and RP or TP lamps lighted. OF-I lamp lighted corresponding to OFF- key operated. OP- lamp lighted corresponding to OP- key operated. TH-, H-, T-, U- lamps lighted corresponding to THO-, HO-, TO-, UO- keys operated.
9	Restore ST key.	All lamps extinguished.
10	Repeat Steps 7 through 9 for Tests 2 through 7 in Table B.	
11	Operate SO key.	
12c	If tip party is to be simulated — Restore TP key.	
13	Operate ST key.	OB, RL, I1, I2 lamps lighted.
14	Restore ST key.	All lamps extinguished.
15d	If office has multiparty lines — Operate PTY key.	
16d	Operate ST key.	OB, RL, I0, I4 lamps lighted.
17d	Restore ST key.	All lamps extinguished.
18d	Restore SO key.	
19d	Operate ST key.	OB, RL, I0, I1 lamps lighted.
20d	Restore ST key.	All lamps extinguished.
21	Restore all keys not required for next test.	

B. Abandoned Call Test

STEP	ACTION	VERIFICATION
→ 7	Operate AB key.	
8	Operate ST key.	At OITT — OB, TM1, ABK, RL lamps lighted.
9	Restore ST key.	All lamps extinguished.
10	Restore all keys not required for next test.	

C. Work Timer

STEP	ACTION	VERIFICATION
7	Operate OFF- key not associated with a PBX arranged for AIOD service.	

STEP	ACTION	VERIFICATION
8	Operate THO-, HO-, TO-, UO- keys to simulate any calling line directory number.	
9	Operate WT1 key.	
10	Operate ST key.	At OITT — OB, IRL, KP, TM1, RL lamps lighted. Minor alarm occurred. Trouble ticket printed.
11	At trouble ticketer frame — Momentarily operate AR key.	Minor alarm retired.

Check trouble ticket for:
5 in character position 3
9 in character position 8
3 in character position 25
– in character position 29
1 in character position 33

Note: If trouble ticket was not printed, wait until trouble ticketer is idle; then restore ST key and repeat Steps 10 and 11.

STEP	ACTION	VERIFICATION
12	At OITT — Restore ST key.	All lamps extinguished.
⌐ 13d	If PBX arranged for AIOD service is available — Restore OFF- key.	
14d	Operate OFF- key associated with AIOD PBX.	
15d	Operate ST key.	OB, IRL, IOD, KP, TM1, RL lamps lighted. Trouble ticket printed. Minor alarm occurred.
⌐ 16d	At trouble ticketer frame — Momentarily operate AR key.	Minor alarm retired.

Check trouble ticket for:
5 in character position 3
9 in character position 8
3 in character position 25
1 in character position 27
– in character position 29
1 in character position 33

Note: If trouble ticket was not printed, wait until trouble ticketer is idle; then restore ST key and repeat Steps 15d and 16d.

STEP	ACTION	VERIFICATION
17	At OITT — Restore ST key.	All lamps extinguished.
18	Restore all keys not required for next test.	

STEP	ACTION	VERIFICATION

D. Timer Two — Continuity Check Failure

STEP	ACTION	VERIFICATION
7c	If tip party is to be simulated — Restore TP key.	
8	Operate WT2 key.	
9	Operate ST key.	At OITT — OB, TRS, TM1, TM2, CCKF, IRL, RL, I0, I1 lamps lighted. Trouble ticket printed. Minor alarm occurred.
10	At trouble ticketer frame — Momentarily operate AR key.	Minor alarm retired. *Check trouble ticket for:* 5 in character position 3 9 in character position 8 4 in character position 20 – in character position 29 1 in character position 32 3 in character position 33 *Note:* If trouble ticket was not printed, wait until trouble ticketer is idle; then restore ST key and repeat Steps 9 and 10.
11	At OITT — Restore ST key.	All lamps extinguished.
12	Restore all keys not required for next test.	

E. Outpulser Second Trial

STEP	ACTION	VERIFICATION
→ 7	Operate OFF- key not associated with a PBX arranged for AIOD service.	
8	Operate THO-, HO-, TO-, UO- keys to simulate any calling line directory number.	
9	Operate 2TR key.	
10	Operate ST key.	At OITT — OB, 1TR, I4, I7, A-, B-, C-, TH-, H-, T-, U- lamps lighted. Trouble ticket printed. Minor alarm occurred.

STEP	ACTION	VERIFICATION
11	At trouble ticketer frame — Momentarily operate AR key.	Minor alarm retired.

Check trouble ticket for:

5 in character position 3
2 or 3 in character position 8
– in character positions 11 through 15
8 in character position 21
3 in character position 32

Note: If trouble ticket was not printed, wait until trouble ticketer is idle; then restore ST key and repeat Steps 10 and 11.

STEP	ACTION	VERIFICATION
12	Insert make-busy plug into CFTF jack associated with identifier group containing outpulser under test.	
13	At OITT — Restore ST key.	All lamps extinguished.
14	When trouble ticketer is idle — Operate ST key.	OB, 1TR, I4, I7, A-, B-, C-, TH-, H-, T-, U-, ST7, ST10 lamps lighted.
15	Restore ST key.	All lamps extinguished.
16	At trouble ticketer frame — Remove make-busy plug from CFTF jack.	
17	At OITT — Restore UO-, 2TR keys.	
18	Operate CTT key.	
19	Operate ST key.	OB, 1TR, 2TR, I0, I2, RL lamps lighted.
20	Restore ST key.	All lamps extinguished.
21	Restore all keys not required for next test.	

F. Trunk Lockup

STEP	ACTION	VERIFICATION
7	Operate TH2AT, H2AT, CTT keys.	
8	At trouble ticketer frame — Operate TKL key.	At trouble ticketer frame — TKL lamp lighted.
9	At OITT — Operate ST key.	At OITT — OB, TLK, I0, I2, RL lamps lighted.
10	At trouble ticketer frame — Restore TKL key.	At trouble ticketer frame — TKL lamp extinguished.

STEP	ACTION	VERIFICATION
11	At OITT — Restore ST key.	At OITT — All lamps extinguished.
12	Restore all keys not required for next test.	

G. All Identifiers Busy

STEP	ACTION	VERIFICATION
7	At trouble ticketer frame — Insert make-busy plug into OP-B jack associated with outpulser under test.	
8	Insert make-busy plugs into all I-BOP- jacks associated with outpulser under test.	At outpulser under test — AIB relay operated.
9	At outpulser under test — Using testing cord, connect ground to 7F of RC relay.	
10	At OITT — Operate ST key.	At OITT — OB, RL, I0, I1 lamps lighted.
11	At outpulser under test — Remove testing cord from RC relay.	
12	At trouble ticketer frame — Remove make-busy plugs from I-BOP-, OP-B jacks.	
13	At OITT — Restore ST key.	All lamps extinguished.
14	Restore all keys not required for next test.	

H. Office Code Translation

STEP	ACTION	VERIFICATION
→ 7	Using information obtained from office records — Operate OFF- key not associated with a PBX arranged for AIOD service to simulate office code of group of directory numbers.	
8d	If office unit contains both physical and theoretical office codes — Operate THO- key to simulate thousands group corresponding to office code simulated in Step 7.	
9e	If particular group of one thousand numbers is associated with both physical and theoretical office codes — Operate HO- key to simulate hundreds group corresponding to office code simulated in Steps 7 and 8d.	

STEP	ACTION	VERIFICATION
→ 10	Operate THO-, HO- keys (if not operated in Steps 8d, 9e) TO-, UO- keys to simulate remaining digits of calling line directory number.	
11	Operate ST key.	At OITT — OB, RL, I4, I7 lamps lighted. A-, B-, C- lamps lighted to match office code corresponding to OFF- key operated or OFF-, THO-, HO- keys operated for Steps 8d and 9e.
12	Restore ST key.	All lamps extinguished.
13	Repeat Steps 7 through 12 for all office codes equipped for translation.	

I. Digit Overregistration Test

STEP	ACTION	VERIFICATION
7	Operate OFF- key to simulate calling office number.	
8	To test digit overregistration in thousands digit — Operate two THO- keys simultaneously in accordance with Test 1 of Table C.	

TABLE C

TEST	KEYS THO-, HO-, TO-, OR UO-
1	1, 3
2	4, 5
3	2, 7
4	0, 8
5	6, 9

STEP	ACTION	VERIFICATION
→ 9	Operate individual HO-, TO-, UO- keys; select numerical key other than those operated for THO- to simulate remaining digits of calling line directory number or AIOD PBX trunk number.	
10	Operate DX, IDK keys.	
11	At trouble ticketer frame — Insert make-busy plugs into TTBOP- jacks for all outpulsers except outpulser under test.	

STEP	ACTION	VERIFICATION
12	At OITT — Operate ST key.	At OITT — OB, 1TR, 2TR, I0, I2, RL lamps lighted. TH- lamps lighted corresponding to THO-keys operated. Trouble ticket printed. Minor alarm occurred.
13	At trouble ticketer frame — Momentarily operate AR key.	Minor alarm retired. *Check trouble ticket for:* 2 or 3 in character position 8 * in character position 12
14	At OITT — Restore ST key.	All lamps extinguished.
15	At trouble ticketer frame — Remove make-busy plugs from TTBOP-jacks.	
16	At OITT — Operate CTT key.	
17	Repeat Steps 8 through 12 for pairs of THO- keys in Tests 2 through 5 in Table C. Restore ST key after each test in Table C.	OB, 1TR, 2TR, I0, I2, RL lamps lighted. TH- lamps lighted corresponding to THO-keys operated. When ST key is restored — All lamps extinguished. *Note:* Trouble ticket is not printed nor alarm sounded for Tests 2 through 5 of Table C.
18	To test overregistration in hundreds digit — Operate two HO- keys simultaneously in accordance with Test 1 in Table C.	
19	Operate individual THO- key; select numerical key other than those operated for HO- keys.	
20	Operate ST key.	OB, 1TR, 2TR, I0, I2, RL lamps lighted. H- lamps lighted corresponding to HO- keys operated.
21	Restore ST key.	All lamps extinguished.
22	Repeat Steps 18, 20, and 21 for pairs of HO- keys for Tests 2 through 5 in Table C.	
23	To test overregistration in tens digit — Operate two TO- keys simultaneously in accordance with Test 1 of Table C.	

STEP	ACTION	VERIFICATION
24	Operate individual HO- key; select numerical key other than those operated for TO- keys.	
25	Operate ST key.	OB, 1TR, 2TR, I0, I2, RL lamps lighted. T- lamps lighted corresponding to TO- key operated.
26	Restore ST key.	All lamps extinguished.
27	Repeat Steps 23, 25, and 26 for other pairs of TO- keys for Tests 2 through 5 in Table C.	
28	To test overregistration in units digit — Operate two UO- keys simultaneously in accordance with Table C.	
29	Operate individual TO- key; select numerical key other than those operated for UO- keys.	
30	Operate ST key.	OB, 1TR, 2TR, I0, I2, RL lamps lighted. U- lamps lighted corresponding to UO- keys operated.
31	Restore ST key.	
32	Repeat Steps 28, 30, and 31 for other pairs of UO- keys for Tests 2 through 5 in Table C.	
33	Restore all keys not required for next test.	

J. Identifier Preference

STEP	ACTION	VERIFICATION
→ 7	Operate OFF- key not associated with a PBX ← arranged for AIOD service.	
8	Operate THO-, HO-, TO-, UO- keys to simulate any calling line directory number.	
9	At trouble ticketer frame — Insert make-busy plug into OP-B jack associated with outpulser under test.	
10	At OITT — Operate ID0 key.	
11	Operate ST key.	At OITT — OB, RL, I4, I7, ID0 lamps lighted.
12	Restore ID0 key.	
13	Restore ST key.	All lamps extinguished.

STEP	ACTION	VERIFICATION
14	Operate ST key.	OB, RL, I4, I7, ID1 lamps lighted.
15	Restore ST key.	All lamps extinguished.
16	Operate ST key.	OB, RL, I4, I7, ID0 lamps lighted.
17	Restore ST key.	All lamps extinguished.
18	At trouble ticketer frame — Remove make-busy plug from OP-B jack.	
19	At OITT — Restore all keys.	

K. Short and Long Loop-Around and Translator Test — When PBX Groups are Arranged for AIOD Class of Service

6	Operate OFF- and THO- keys associated with PBX groups arranged for AIOD service to select AIOD office code number. *Note:* Any THO- key may be associated with an AIOD translator for number to be identified. Operate THO- key in accordance with local assignment for translator selection.	
7	Operate UNO- or POF- key to select PBX office index number. *Note:* Operate UNO- key when AIOD PBX groups are associated with a station identification store (SIS) circuit. Operate POF- key for 101 ESS PBX groups.	
8d	If a particular translator is to be used when performing short loop-around test — Operate TS- key.	At OITT — TS- lamp lighted.
9e	If performing short loop-around test — Operate HO-, TO-, UO- keys to simulate remaining digits of PBX trunk number.	
10e	Operate ST key.	At OITT — OB, RL, I4, I7, SDK lamps lighted. A-, B-, C- lamps momentarily lighted to match AIOD office code corresponding to operated OFF- and THO- keys. A-, B-, C- lamps immediately relighted to match PBX office index corresponding to operated UNO- or POF- keys. TH-, H-, T-, U- lamps lighted to indicate PBX station number. *Note:* PBX station number digits are same as PBX trunk number digits and correspond to operated THO-, HO-, TO-, UO- keys.

STEP	ACTION	VERIFICATION
11e	Restore ST key.	All lamps extinguished.
12d	If a particular translator is to be used when performing short loop-around test — Repeat Steps 6 through 11e for each AIOD translator.	
13d	Restore TS- key.	
14f	If performing long loop-around test — Operate LLT key.	LLT lamp lighted.

14f *Caution: The long loop-around test must conform with requirements covered in the PBX AIOD trouble location manual. The PBX trunk number set into the OITT circuit must be the same as the PBX trunk number used by the PBX AIOD test circuit to address the SIS circuit.*

STEP	ACTION	VERIFICATION
15f	Operate THO-, HO-, TO-, UO- keys in accordance with PBX trunk number used by the PBX AIOD test circuit to address the SIS circuit.	
16f	Operate ST key.	OB, RL, I4, I7, SDK lamps lighted. TH-, H-, T-, U- lamps lighted to indicate PBX station number.

Note: PBX station number will correspond to test station number recorded in PBX AIOD trouble locating manual.
A-, B-, C- lamps lighted to match PBX office index corresponding to operated UNO- or POF- key.

STEP	ACTION	VERIFICATION
17f	Restore ST, LLT keys.	All lamps extinguished.
18	Restore all keys.	